

Listing of Claims

1-41. Canceled.

42. (Currently amended) A method of fermenting a plurality of samples, the method comprising:

- (a) providing a plurality of sample vessels in a container frame, wherein each of the sample vessels contains a sample;
- (b) fermenting the samples in the plurality of sample vessels, which fermenting comprises simultaneously delivering gas to each of the sample vessels via a plurality of cannulas that are attached to a fermentor head, wherein the fermentor head comprises:

- (1) a dispensing plate that comprises a top portion and a bottom portion, wherein the bottom portion and the top portion are joined together such that a hollow space exists between the top portion and the bottom portion;
- (2) an array of sample vessel areas located in a bottom surface of the bottom portion, which sample vessel areas each comprise a recess and are positioned to correspond to associated with the sample vessels;
- (3) an array of cannulas that are in fluid communication with the hollow space and protrude from a bottom surface of the dispensing plate through the sample vessel areas, wherein at least one cannula of the array of cannulas extends into a liquid in a sample vessel when the sample vessel is positioned in a sample vessel area through which the cannula protrudes; and
- (4) a gas inlet in fluid communication with the hollow space for delivering gas into the sample vessels via the cannulas during fermentation.

43. (Original) The method of claim **42**, wherein each sample has a volume of less than 100 ml.

44. (Original) The method of claim **42**, further comprising pre-processing or post-processing the samples in the sample vessels.

45. (Original) The method of claim **44**, wherein the pre-processing or post-processing is performed in a different location than step (b).

46. (Original) The method according to claim **44**, wherein the pre-processing and/or post-processing are performed robotically.

47. (Original) The method according to claim **44**, wherein the pre-processing and/or post-processing comprises centrifugation, aspiration, or dispensing of one or more reagent.

48. (Original) The method of claim **42**, wherein delivering gas comprises delivering oxygen, air, and/or, nitrogen to the samples.

49. (Original) The method of claim **42**, wherein delivering gas comprises delivering air and oxygen to the samples over a period of time, during which period of time, the ratio of air to oxygen changes.

50. (Original) The method of claim **49**, wherein the ratio changes linearly over time or in a stepwise manner over time.

51. (Original) The method of claim **42**, further comprising configuring the sample vessels into a rectangular array, a honeycomb array, or a linear array within the container frame.

52. (Original) The method of claim **42**, further comprising transferring the sample vessels into a centrifuge rotor.

53. (Original) The method according to claim **42**, further comprising detecting one or more fermentation conditions with a sensor coupled to one or more sample vessels and adjusting the fermentation conditions in the sample vessels.

54. (Original) The method according to claim **53**, comprising detecting and adjusting at pre-determined time intervals.

55. (Original) The method according to claim **53**, wherein the adjusting the fermentation conditions comprises adding a feed solution to the sample vessels.

56. (Original) The method according to claim **53**, wherein the detecting comprises: measuring a pH of one of the samples; measuring a redox potential of one of the samples; measuring an optical density of one of the samples; and/or measuring a light emission from one of the samples.

57. (Original) The method of claim **42**, further comprising autoclaving the sample vessels in the container frame.

58. (Original) The method of claim **57**, further comprising autoclaving the plurality of cannulas simultaneously with the sample vessels in the container frame.

59. (Currently amended) A method of fermenting a plurality of samples, the method comprising:

(a) positioning a plurality of sample vessels into a transportable container frame, which container frame maintains the sample vessels in an array;

(b) placing the plurality of samples into the plurality of sample vessels;

(c) attaching a fermentor head to the container frame, which fermentor head comprises:

- (1) a dispensing plate that comprises a top portion and a bottom portion, wherein the bottom portion and the top portion are joined together such that a hollow space exists between the top portion and the bottom portion;
- (2) an array of sample vessel areas located in a bottom surface of the bottom portion, which sample vessel areas each comprise a recess and are positioned to correspond to an array of sample vessels;
- (3) an array of cannulas that are in fluid communication with the hollow space and protrude from a bottom surface of the dispensing plate through the sample vessel areas, wherein the array of cannulas corresponds to the array of sample vessels and is inserted into the sample vessels; and
- (4) a gas inlet in fluid communication with the hollow space for delivering gas into a plurality of sample vessels via the cannulas during fermentation;

(d) fermenting the samples in the sample vessels, which fermenting comprising simultaneously delivering a gas to the samples via the array of cannulas.

60. (Original) The method of claim **59**, wherein step (c) is performed prior to step (b).

61. (Original) The method of claim **59**, wherein step (b) is performed prior to step (a).

62. (Original) The method of claim **59**, wherein delivering a gas comprising delivering oxygen, nitrogen, and/or air to the sample vessels during step (d).

63. (Original) The method of claim **59**, wherein step (d) is an anaerobic fermentation comprising delivering an inert gas to maintain anaerobic fermentation conditions in the sample vessels.

64. (Original) The method of claim **59**, wherein the sample vessels each have a volume between 50 and 200 ml.

65. (Original) The method of claim **59**, wherein the sample vessels have a volume between 80 and 100 ml.

66. (Original) The method of claim **59**, wherein each sample has a volume less than 200 ml.

67. (Original) The method of claim **59**, wherein each sample has a volume of less than 100 ml.

68. (Original) The method of claim **69**, comprising robotically transporting the sample vessels in the container frame.

69. (Original) The method of claim **59**, further comprising simultaneously transporting the plurality of sample vessels in the container frame to a processing station.

70. (Original) The method of claim **69**, wherein the processing station comprises a centrifuge, an aspirator, and/or a dispenser.

71. (Original) The method of claim **70**, wherein the sample container is compatible with the centrifuge.

72. (Original) The method of claim **70**, wherein the sample vessels are compatible with the centrifuge.

73. (Original) The method of claim **70**, further comprising removing the sample vessels from the container frame and introducing the sample vessels into the centrifuge.

74. (Original) The method of claim **70**, wherein the aspirator comprises an aspirator head which corresponds to the array of sample vessels within the container frame, the method further including operably attaching the aspirator head to the sample vessels and simultaneously aspirating the samples within the sample vessels.

75. (Original) The method of claim **70**, the method further dispensing one or more materials into the sample vessels.

76. (Original) The method of claim **70**, wherein the dispenser comprises a dispensing head corresponding to the array of sample vessels, the method further including operably attaching the dispenser head to the sample vessels and simultaneously dispensing one or more materials into the sample vessels.

77. (Original) The method of claim **59**, wherein the array comprises an 8 by 12 array.

78. (Original) The method of claim **59**, wherein the array comprises 96, 384, or 1536 sample vessels.

79. (Original) The method of claim **59**, further comprising positioning the sample vessels in the container frame in a water bath during the fermenting step in order to control the fermentation temperature.

80-85. Canceled.